

CLAIMS

What is claimed is:

1. A viscosity reducible radiation curable composition comprising at least one radiation curable component and a filler, wherein the composition has the properties:
  - i) a yield stress value of  $< 1100$  Pa,
  - ii) a viscosity (at a shear rate of  $1 \text{ sec}^{-1}$ ) between 1 and 1500 Pa.sec, and
  - iii) a filler settling speed less than 0.3 mm/day.
2. A viscosity reducible radiation curable composition comprising at least one radiation curable component and a filler, wherein the composition has the properties:
  - i) a yield stress value of  $< 1100$  Pa,
  - ii) a viscosity (at a shear rate of  $10 \text{ sec}^{-1}$ ) between 1 and 200 Pa.sec, and
  - iii) a filler settling speed less than 0.3 mm/day.
3. The radiation curable composition according to claim 1 or 2, wherein the yield stress value is  $< 500$  Pa.
4. The radiation curable composition according to anyone of claims 1 to 3, wherein the composition comprises at least one photoinitiator.
5. The radiation curable composition according to anyone of the preceding claims, wherein the composition has a thixotropic index of at least 3.
6. The radiation curable composition according to anyone of the preceding claims, wherein the composition contains a thixotropic agent.
7. The radiation curable composition according to claim 6, wherein the thixotropic agent is selected from the group consisting of Thixcin R, Thixatrol 1, Thixatrol GST, Thixatrol ST, Aluminum stearate 132 and 22, MPA 14, Ken react LICA 38 and KR 55.
8. The radiation curable composition according to claim 6, wherein the thixotropic agent is selected from the group consisting of Thixcin R, Thixatrol 1, Thixatrol GST, and Thixatrol ST.
9. The radiation curable composition according to anyone of the preceding claims, wherein the composition comprises a flow aid.
10. The radiation curable composition according to claim 9, wherein the flow agent is selected from the group consisting of polyacrylates and polyalkyleneoxide modified polydimethylsiloxane.

- 11 The radiation curable composition according to claim 9, wherein the flow agent comprises Modaflow 2100.
- 12 The radiation curable composition according to anyone of the preceding claims, wherein the composition retrieves the viscosity after a steady shear of 1 second within 300 seconds.
- 13 The radiation curable composition according to anyone of the preceding claims, wherein the composition comprises cationically curable components, and radically curable components.
- 14 The radiation curable composition according to claim 9, wherein the composition comprises between 30 and 90 wt% of cationically curable components.
- 15 The radiation curable composition according to any one of the preceding claims, wherein the composition comprises between 5 and 50 wt% of radically polymerizable components.
- 16 A viscosity reducible radiation curable composition comprising  
5-70 wt% of a difunctional epoxy compound  
0.1-15 wt% of an acrylate having a functionality of larger than 2  
0.1-10 wt% of a thixotropic agent  
0.01-5 wt% of a flow modifier  
10-90 wt% of a filler and at least one photoinitiator
- 17 The composition according to claim 16, wherein the composition has the properties:  
i) a yield stress value of  $< 1000 \text{ Pa}$ ,  
ii) a viscosity (at a shear rate of  $1 \text{ sec}^{-1}$ ) between 0 and  $1500 \text{ Pa}\cdot\text{sec}$ , and  
iii) a filler settling speed less than  $0.3 \text{ mm/day}$ .
- 18 A method for forming a three dimensional object comprising the steps of:  
a) coating a layer of a viscosity reduced composition as define in anyone of claims 1-16 on a surface;  
b) allowing said layer to become a viscosity reducible composition layer having a viscosity greater than said viscosity reduced layer;  
c) exposing said viscosity reducible layer to radiation imagewise by radiation means in order to photoform said layer imagewise;  
d) repeating steps a) through c) until the three dimensional object is being formed.